

PATENT

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GROUP 1700**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:
Huig Klinkenberg, et. al

Serial No.: 09/820,074
Filing Date: March 28,2001

For: PHOTOACTIVATABLE COATING
COMPOSITION AND ITS USE FOR THE
PREPARATION OF COATINGS WITH A
RAPIDLY PROCESSABLE SURFACE AT
AMBIENT TEMPERATURE

Assistant Commissioner for Patents
Washington, D.C. 20231

: Docket: ACO2774US

: Examiner:

: Group Art Unit:

CERTIFICATE OF FACSIMILE TRANSMISSION

It is hereby certified that the attached:
Amendment (10 sheets) is being faxed to 703-872-
9310 to the Assistant Commissioner for Patents

July 7, 2003
Joan M. McGillycuddy

Sir:

Response

In response to the Official Action mailed March 4, 2003 and in accordance with the provisions of 37 CFR §1.111, Applicants submit the following amendments and response to be made of record in the above-identified case.

As a first matter with regard to the obviousness rejection in general, in order to establish a prima facie case, the Examiner must satisfy three requirements. First, the prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to **modify a reference** or to combine references. See *Karsten Mfg. Corp. v. Cleveland Gulf Co.*, 242 F.3d 1376, 1385, 58 U.S.P.Q.2d 1286, 1293 (Fed. Cir. 2001) ("In holding an invention obvious in view of a combination of references, there must be some suggestion, motivation, or teaching in the prior art that would have led a person of ordinary skill in the art to select the references and combine them in the way that would produce the claimed invention."); *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157

F.3d 1340, 1352, 48 U.S.P.Q.2d 1225, 1232 (Fed. Cir. 1998) (a showing of a suggestion, teaching, or motivation to combine the prior art references is an "essential evidentiary component of an obviousness holding"). Northern Telecom v. Datapoint Corp., 908 F.2d 931, 934, 15 U.S.P.Q.2d 1321, 1323 (Fed. Cir. 1990) (It is insufficient that the prior art disclosed the components of the patented device, either separately or used in other combinations; there must be some teaching, suggestion, or incentive to make the combination made by the inventor."). The teachings or suggestions, as well as the second requirement, expectation of success, must come from the prior art, not applicant's disclosure. See In re Vaeck, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991).

In the present case, there is no motivation to look to CA '504 in combination with either WO '964 or WO '524 with respect to the present invention.

Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. In other words, a hindsight analysis is not allowed. See Amgen, Inc. v. Chugai Pharm. Co., 927 F.2d 1200, 1209, 18 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1991).

Lastly, the prior art reference or combination of references must teach or suggest all the limitations of the claims. See In re Wilson, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970) ("All words in a claim must be considered in judging the patentability of that claim against the prior art.").

For at least the reasons previously submitted and the arguments presented herein, the Examiner has failed to meet this burden and therefore the obviousness rejections should be withdrawn.

Here, the Examiner has rejected claims 1 and 3 – 15 as allegedly obvious over CA '504 in view of WO '964. Applicants respectfully traverse this rejection for at least the following reasons.

With respect to CA '504, this piece of prior art discloses a coating composition which contains

- A) on or more compounds with on average at least two CH-acid hydrogen atoms,
- B) one or more α,β -unsaturated compounds,
- C) optionally one or more radically or ionically polymerizable compounds,
- D) a first catalyst in the form of a Lewis or Brönsted base, and
- E) one or more photoinitiators (p. 2, ll. 19 – p. 3, l. 18).

Component E consists of customary photoinitiators, such as are used for radical and ionic polymerization (p. 20, ll. 10 – 12). Particularly preferred usable radical initiators are phosphine oxides (p. 20, ll. 34 – 36). Photolent bases are neither mentioned nor suggested as component E in CA '504. Component C can be the same compounds as component B (p. 18, l. 26 – p. 19, l. 8). The skilled person will immediately recognize that the photoinitiators E are employed to initiate the photopolymerization of components B and/or C.

Meanwhile, WO '964 (page numbers refer to translation as submitted) discloses α -ammonium alkenes, iminium alkenes and amidinium alkenes in the form of their tetraaryl- or triarylalkylborate salts, which split off an amine, imine or amidine group during irradiation with visible light or UV light (p. 1, last paragraph). WO '964 further relates to a composition comprising a photolent base and at least one organic compound that is capable of a base-catalyzed addition or substitution reaction (p. 11, penultimate paragraph). Especially preferred base-catalyzable binders are two-component systems consisting of α,β -ethylenically unsaturated carbonyl compound and a polymer containing activated CH₂ groups (p. 15, first paragraph).

WO '964 further discloses that, in addition to the base-curable binders, the composition may comprise other binders, such as olefinically unsaturated compounds (p. 19, last paragraph – p. 20, penultimate paragraph). Such binders are free-radically curable (p. 20, 1st sentence of last paragraph). These free radically-curable compounds correspond to component C of CA '504.

When such free-radically curable compounds are present, it is advantageous to add a further photoinitiator that decomposes yielding free

radicals. Phosphine oxides are specifically mentioned (p. 20, last paragraph). Said further photoinitiator corresponds to component E of CA '504.

As previously submitted, WO 00/10964 discloses a photolabile base for use in systems consisting of an α,β -ethylenically unsaturated carbonyl compound and a polymer containing activated CH_2 groups. **WO 00/10964 does not teach or suggest adding unblocked Lewis or Brönstedt bases to the systems.**

Since a particular advantage of the latent bases of WO 00/10964 is the possibility of one-pot systems having an extraordinary high level of storage stability (p. 2, 1st sentence of the translation), it actually teaches away from using unblocked basic catalysts.

Together with the arguments previously submitted, it is obvious that the combination of CA '504 and WO '964 is neither suggested, nor is there a motivation to combine these references.

However, if, for the sake of argument, one were to contemplate combining the teachings of CA '504 and WO '964, the skilled person would not arrive at the subject-matter of instant claim 1.

As explained above, CA '504 discloses employing a radical or cationic photoinitiator E for the photopolymerization of the radically or ionically polymerizable compounds B and/or C. Similarly, WO '964 teaches to employ further photoinitiators that decompose yielding free radicals when free radically curable binders are additionally present in the composition. Thus, both publications teach to employ a further non-basic photoinitiator to polymerize radically polymerizable compounds present in the composition.

A skilled person knows that the radical and/or cationic polymerization as taught in the cited publications cannot be initiated by a photolabile base. To replace the non-basic photoinitiator with a photolabile base thus would mean to dissent from the teachings of both CA '504 and WO '964. It cannot possibly be obvious to come up with a composition which is contradictory to the teaching of both cited documents.

A skilled person who, irrespective of the arguments given above, would try to employ the photoactivatable base of WO '964 in the composition of CA '504

after **would simply theorize that the photolabile base of WO '964 could be used as an alternative for the Lewis or Brønsted base D of CA '504.**

Consequently, the skilled person would replace the Lewis or Brønsted base D of CA '504 with the photolabile base of WO '964 in order to take advantage of the curing effects and high level of storage stability. However, this would again result in the composition of WO '964 and not in the composition according to the current application.

Finally, none of the cited references alone or in combination would motivate a skilled person to modify the composition of CA '504 by including additionally the photolabile base of WO '964, because the composition of CA '504 already comprises a Lewis or Brønsted base D for crosslinking in concealed areas, as well as a non-basic photoinitiator E, which both publications teach to employ, for rapid curing by radiation (p. 23, ll. 27 – 32).

Accordingly, it would not have been obvious to employ the photolabile bases taught by WO '964 as the ^{base} photoinitiator in the compositions taught by CA '504.

The Examiner has also rejected claims 1 and 3 – 15 as allegedly obvious over CA '504 in view of WO 98/41524.

With respect to CA '504, see discussion above.

As to, WO 98/41524 this piece of prior art discloses α -amino alkene compounds that may be used as a photolabile base (p. 1, 1st paragraph). The compounds can be used in Michael addition reactions of monomers or polymers customary in the coatings industry (p. 14, "n").

WO 98/41524 further discloses that, in addition to the base-curable binders, the composition may comprise other binders, such as olefinically unsaturated compounds (p. 20, last paragraph – p. 21, penultimate paragraph). Such binders are free-radically curable (p. 21, 1st sentence of last paragraph). **These free radically-curable compounds correspond to component C of CA '504.**

When such free-radically curable compounds are present, it is advantageous to add a further photoinitiator that decomposes yielding free

radicals. Phosphine oxides are specifically mentioned (p. 21, last paragraph). Said further photoinitiator corresponds to component E of CA '504.

Based on the arguments submitted previously, as well as those set forth above, there is no motivation or suggestion to combine CA '504 and WO 98/41524.

However, assuming *arguendo*, one were to contemplate combining the teachings of CA '504 and WO '524, the skilled person would not arrive at the subject-matter of instant claim 1.

The explanations provided above for the possible combination of CA '504 and WO '964 apply analogously for the combination of CA '504 and WO '524.

Accordingly, it would not have been obvious to employ the photolabile bases taught by WO '524 as the photoinitiator in the compositions taught by CA '504.

Furthermore, in the instant application it is explained that the coating composition according to EP 0 582 188-A (European equivalent of CA '504) cures by two entirely different curing mechanisms (p.1, ll. 14 – 20 of the instant application).

The radically or ionically polymerizable compounds C as well as the α,β -unsaturated compounds B are susceptible to radiation curing, since component C can be the same compounds as component B (p. 19, ll. 4 – 8 of CA '504). A skilled person knows that the extent of radiation curing in the coating according to CA '504 depends on several factors, such as layer thickness, pigmentation, intensity of the radiation source, and the shape of the coated object. As a consequence, the proportion of α,β -unsaturated compounds B present in the coating after radiation curing is impossible to predict and varies from case to case.

The second curing mechanism is based on the addition reaction between the compounds A with on average at least two CH-acid hydrogen atoms and said α,β -unsaturated compounds B. For sufficient reliability of the second curing mechanism it is therefore important to have a predetermined stoichiometry of compounds A and B. However, since the proportion of compounds B present

after radiation curing varies from case to case, coatings with a reliable curing pattern are difficult to obtain according to the teaching of CA '504.

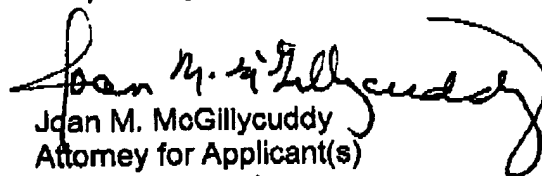
This disadvantage also applies to the coatings according to WO '964 and WO '524, because these documents disclose a similar combination of curing the binders by a free-radical polymerization and by a base catalyzed polyaddition reaction.

The coating composition according to the current invention is not hampered by the above-mentioned disadvantage, since the radiation-induced curing and thermal curing occurs by the same base-catalyzed reaction mechanism. Therefore, coatings with a reliable curing pattern can be formulated, because the stoichiometry of compounds with on average at least two CH-acid hydrogen atoms and α,β -unsaturated compounds can be precisely determined. None of the cited documents mentions or suggests that this advantage can be obtained with the coating composition according to instant claim 1. Since none of the cited references alone or in combination even remotely suggests to employ a combination of Lewis or Brønsted base and a photolabile base, it is not possible to infer that said advantage can be attained with coating composition according to the instant invention.

Based on the above arguments, it is not obvious in view of the cited prior art documents, either alone or in combination, to come up with the coating composition according to instant claim 1. Consequently, dependent claims 3 – 15 cannot possibly be obvious, either.

In view of the remarks herein, the papers submitted previously, Applicants request withdrawal of the objections and believe the present application to be in condition for allowance, which action is respectfully requested.

Respectfully submitted,


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